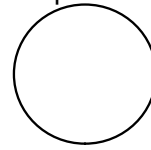


11-5 Areas Circles and Sectors

Area of a circle = πr^2

Example 1:

 $r = 4 \text{ cm}$

$$\begin{aligned}
 A &= \pi 4^2 \\
 &= 16\pi \text{ cm}^2 \quad \text{exact answer} \\
 &\approx 50.3 \text{ cm}^2 \quad \text{approximate}
 \end{aligned}$$

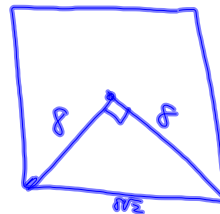
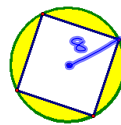
Example 2:

The area of a circle = 390.1 cm^2 .
What is the radius?

$$\begin{aligned}
 A &= \pi r^2 \\
 390.1 &= \pi r^2 \\
 \sqrt{\frac{390.1}{\pi}} &= r \\
 11.1 \text{ cm} &= r
 \end{aligned}$$

Example 3:

A square is inscribed in a circle.
Find the area of the shaded region.
The radius is 8 cm.



$$\begin{aligned}
 A_{\text{circle}} - A_{\text{sq}} \\
 64\pi - (8\sqrt{2})^2 \\
 64\pi - 128 \\
 73.1 \text{ cm}^2
 \end{aligned}$$

Example 4:

Find the area of the shaded region.
One side of the equilateral triangle is $8\sqrt{3} \text{ cm}$.

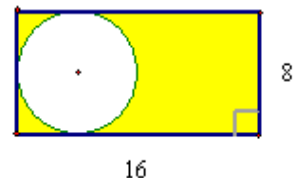


$$\begin{aligned}
 A_{\text{circle}} - A_{\Delta} \\
 64\pi - \left[\frac{(8\sqrt{3})^2 \sqrt{3}}{4} \right] \\
 64\pi - 48\sqrt{3} \\
 117.9 \text{ cm}^2
 \end{aligned}$$

Example 5:

Find the area of the shaded region.

$$\begin{aligned}
 A_{\text{rect}} - A_{\text{circle}} \\
 16 \cdot 8 - 16\pi \\
 \approx 77.7 \text{ u}^2
 \end{aligned}$$



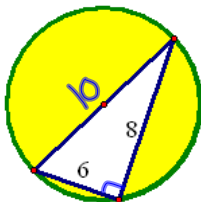
Example 6:

Find the area of the shaded region.

$$A_{\text{circle}} - A_{\Delta}$$

$$25\pi - \frac{1}{2}6 \cdot 8$$

$$54.5 \text{ u}^2$$



Example 7:

Find the area of the shaded region.

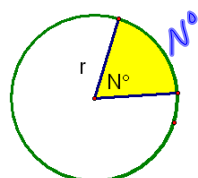
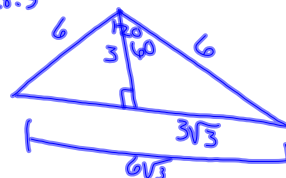
Eg

$$B_{\text{circle}} - \Delta + S_{\text{circle}}$$

$$36\pi - \frac{1}{2}6\sqrt{3}(9) + 9\pi$$

$$113.1 - 27\sqrt{3} + 28.3$$

$$94.6 \text{ cm}^2$$

 $r = 6 \text{ cm}$ 

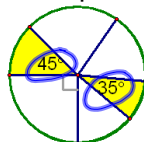
Area of Sector

$$A = \frac{N}{360} \pi r^2$$

$$\frac{\text{area sector}}{\pi r^2} = \frac{m_{\text{arc}}}{360}$$

Example 8:

Find the area of each sector.



$$d = 18 \text{ in}$$

$$r = 9$$

$$\frac{35}{360} 81\pi$$

$$= 24.7 \text{ in}^2$$

$$\frac{45}{360} 81\pi$$

$$= \frac{81\pi}{8} \approx 31.8 \text{ in}^2$$

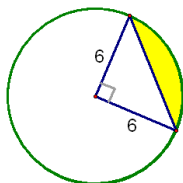
Example 9:

Find the area of the segment.

$$A_{\text{sector}} - A_{\Delta}$$

$$\frac{90}{360} 36\pi - \frac{1}{2} 36$$

$$\approx 10.3 \text{ u}^2$$



HW p758-759

#s 3, 4, 7, 11, 12, 17, 26, 28-31